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**Report to Congress  
Pursuant to Section 1305 of the  
FY97 National Defense Authorization Act**

Section 1305 of the National Defense Authorization Act for FY97 states that "the Secretary of Defense shall prepare a report...on the future pattern of military modernization of the People's Republic of China. The report shall address both the probable course of military-technological development of the People's Liberation Army and the development of Chinese military strategy and operational concepts." Section 1305 further identifies seven specific "matters to be included" in the report.

This report, submitted in response to section 1305, addresses the broad issues identified for attention as well as the seven "matters to be included," in the order in which they are set forth in the statute.

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#### **SELECTED MILITARY CAPABILITIES OF THE PEOPLE'S REPUBLIC OF CHINA**

##### *"Chinese Military Strategy and Operational Concepts:"*

China's long-term goal is to become one of the world's great powers. Its leaders envision that, at some point during the first half of the twenty-first century, China will be securely established as the leading economic and political power in East Asia. Chinese statements and actions support the theory that China will continue to emphasize economic growth and economic modernization, rather than military might, as a foundation for national greatness. As an emerging great power, China will probably build its military power to the point where it can engage and defeat any potential enemy within the region with its conventional forces and can deter any global strategic threat to China's national security. Evidence suggests, however, that China will develop her military strength at a measured pace. A more rapid or large-scale military build-up is seen by the Chinese leadership as unnecessary and detrimental to continued economic growth.

China's future military strategy is likely to concentrate on improving the defensive posture of its armed forces while developing a capability to fight short duration, high intensity wars in the region. Military modernization probably will focus on three components: small high-tech forces for flexible use in regional contingencies, large low-tech and medium-tech forces for internal security and reinforcement in defense of the homeland, and modest levels of strategic nuclear forces to maintain a viable deterrent against other nuclear powers.

This strategy would place primary emphasis on developing an offshore defense of China's eastern seaboard. To accomplish this, China probably will accord the highest military priority to developing the advanced air, air defense, and sea forces needed to defend the maritime approaches to China. To maintain its territorial claims and other interests in the region, China is likely to continue developing the capability to conduct combined arms operations in maritime areas.

To carry out this strategy, China is engaged in developing and acquiring new fighter aircraft, submarines, improved naval air defenses, and short-range ballistic missiles. In the ground forces, it is giving attention to the creation of rapid reaction units and airborne forces. In accordance with this developing strategy, the People's Liberation Army (PLA) has indicated that it will decrease in size in the near future to conserve funds for military modernization.

China's nuclear strategy probably will continue to emphasize the development of a nuclear retaliatory capability as a deterrent against the potential use of nuclear weapons by existing nuclear weapons states. Ongoing ballistic missile modernization encompasses a shift from liquid to solid fuel missiles.

China's ability to achieve its military modernization objectives for the coming decade and beyond will depend to a large extent on the rate at which it can assimilate the foreign technology it is acquiring, on its ability to use and integrate the new weapon systems it is purchasing from abroad, and on its industrial capacity to produce advanced weapons domestically without foreign technical assistance. Beijing is likely to experience mixed results in all three areas. The problems China faces in these areas could constrain progress in achieving overall modernization objectives as rapidly as the Chinese would hope.

**"(1) Trends that would lead the People's Republic of China toward advanced intelligence, surveillance, and reconnaissance capabilities, either through a development program or by gaining access to commercial or third-party systems with militarily significant capabilities."**

#### *Satellite Imaging Systems:*

The Chinese currently have the capability to launch military photo-reconnaissance satellites however the technology they employ is outdated by Western standards and they lack real-time satellite reconnaissance capabilities. The Chinese also currently use commercial SPOT and LANDSAT imagery, which can have some military uses. Use of other commercial satellite imagery can also be anticipated as these data sources become available in the next few years. China launches meteorological satellites and there is a high probability that its first geosynchronous satellite will be launched in 1997. It is expected that China eventually will deploy advanced imagery reconnaissance and earth resources systems with military applications.

### *Airborne Early Warning Systems:*

China has been trying to acquire an airborne early warning system since the late 1980s. In the near future, Beijing is expected to award a contract to a foreign radar manufacturer to provide China with this capability. It could take an estimated four to six years from the date of a contract, however, before China is likely to have an operational airborne early warning platform.

The development of more advanced satellite surveillance systems and sensors will continue to improve China's strategic view of the Pacific theater. The acquisition of airborne early warning and maritime patrol systems and their introduction into the armed forces, if successful, will greatly improve China's battlefield command and control capabilities. However, China will continue to lack a truly integrated Airborne Warning and Control (AWACS) capability.

**"(2) Efforts by the People's Republic of China to develop highly accurate and low-observable ballistic and cruise missiles, and the investments in infrastructure that would allow for production of such weapons in militarily significant quantities, particularly in numbers sufficient to conduct attacks capable of overwhelming projected defense capabilities in the region."**

Over the past decade, China has greatly invested in its infrastructure to develop and produce new ballistic and cruise missiles. Beijing is slowly upgrading and expanding the size of its ballistic missile forces and is developing new types of ballistic missiles.

### *SRBMs/MRBMs:*

#### *CSS-6 (DF-15)*

China's CSS-6 (DF-15) road-mobile SRBM, better known by the export name M-9, has been operational since 1995. CSS-6 missiles were launched from southern China into the waters off Taiwan in 1995 (six launches) and 1996 (four launches) as part of Beijing's efforts to dissuade Taiwan from moving toward independence. These launches into specific closure areas near Taiwan demonstrated a degree of accuracy not previously associated with Chinese missiles.

#### *CSS-7 (DF-11)*

The CSS-7 is better known by its export designator M-11. Although the CSS-7 has a range of 300 km, the Chinese may be working on an improved version with a longer range. The accuracy of these missiles will improve in the future if China is able to apply Global Positioning System (GPS) guidance technology.

## CSS-5 (DF-21)

The CSS-5 MRBM is China's first ground-based solid-propellant ballistic missile. This missile has already been deployed and has the range to strike China's nearest neighbors.

## ICBMs/SLBMs

After the turn of the century China plans to begin production and deployment of at least one new solid-propellant ICBM that will provide China's strategic nuclear forces improved mobility, survivability, accuracy, and reliability. China is developing two new solid-fuel mobile ICBMs, the DF-31 and DF-41, which reportedly will have ranges of at least 8,000 and 12,000 kilometers, respectively.

## *Infrastructure to Produce Missiles:*

China has a large, well-established infrastructure for the development and production of ballistic missiles. The China Aerospace Corporation (CASC) and its subordinate development, production and test facilities are responsible for ballistic missile production. China reportedly has received technology related to missile programs from Russia in recent years. China probably will have the industrial capacity, though not necessarily the intent, to produce a large number, perhaps as many as a thousand, new missiles within the next decade. Most new missiles are likely to be short-range or medium-range, road-mobile, and fueled by solid-propellants. All of them are expected to have greatly improved accuracy over current systems, and many will be armed with conventional warheads.

## *Cruise Missiles:*

China is developing land-attack cruise missiles (LACMs) for theater warfighting and strategic attack. These cruise missiles seem to have a relatively high development priority to ensure that Chinese forces will have greater conventional firepower. Long-range cruise missiles probably will also be used to bolster the viability of Chinese military deterrence. The first LACM design produced probably will be air-launched from Chinese bombers and should be operational early in the next century. China could develop a sea-launched version for use on either submarines or surface combatants. Chinese LACM R&D is aided by an aggressive effort to acquire foreign cruise missile technology, particularly from Russia. China also seeks enabling technologies and subsystems from the United States and other foreign countries.

"(3) Development by the People's Republic of China of enhanced command and control networks, particularly those capable of battle management that would include long-range precision strikes."

*Modernization of Chinese Command and Control Networks:*

China has made significant efforts to modernize and improve its command, control, communications, computers, and intelligence (C4I) infrastructure. Chinese military leaders have expressed their belief that advances in telecommunications technology will be an important factor in the outcome of any future conflicts. This advanced technology will involve different arms and services and impact every aspect of battle.

China is working to improve its C4I capabilities. Planned improvements include better coordination, more effective construction of C4I systems, and providing all military echelons with the technology required to have a unified C4I system capable of satisfying combat requirements.

The current wire and radio communications equipment of the PLA is at least two generations behind that of Western countries. However, the PLA has made progress in modernizing its C4I system, completing an automated command and control system, developing a new type of general field communications system, and disseminating new general signal regulations.

In recent years, China has emphasized the need to modernize command automation systems, which previously were reportedly used for divisional and regimental training. With the appropriate equipment, a group army conducting battlefield exercises today can use an advanced-level automation system that integrates field command, operational simulation, and computer plotting. Unlike the old system, which used telegrams and telephones, the new system allows the group army to write its documents electronically and to transmit these documents and a commander's verbal orders through a network to division and regimental commands as well as to forward positions a long distance from headquarters. Currently, however, only a few PLA group armies are believed to have the equipment necessary for group army-level command automation.

The PLA has conducted research on the key technologies required to develop an Integrated Battlefield Area Communications System (IBACS). The Institute of Information Science, Xidian University, China's highest level military communications institute, is currently conducting research in such areas as speech signal processing, broadband integrated services digital networks (B-ISDN), and application-specific integrated-circuit (ASIC) design. These research efforts are beginning the transition into both experimental and fielded communications systems.

Because most PLA command and control systems are still manual, there are long delays in dissemination of directives. To improve this situation in air defense, China has developed an automated tactical air defense C4I system. This system provides field air defense weapons with rapid and accurate intelligence and maximizes unit combat

effectiveness and firepower. The introduction of automated weapons and troop control systems greatly increases the need for an IBACS.

The Automated Air Defense Command and Control System identifies targets, evaluates threats, allocates forces, and guides fighters. It also commands surface-to-air missiles (SAMs) and antiaircraft artillery (AAA), and it includes tactical air defense systems (TADS) and fixed radars. A sector operations center is linked with three TADS, various air bases, AAA sites, SAM units, radars, and ground and naval units. The TADS include radars, fighters, and AAA.

Despite significant improvement in military C4I, Chinese ability to control sophisticated military operations still lags behind current western standards.

(4) "Programs of the People's Republic of China involving unmanned aerial vehicles, particularly those with extended ranges or loitering times."

China has an active program to purchase or develop unmanned aerial vehicles (UAVs) for its armed forces. Several Western suppliers are actively interested in pursuing the market for UAVs in China. Indigenous Chinese UAVs also will be developed and could be improved with foreign assistance.

China's research and development centers, especially Xian's Northwest Polytechnic University (NPU), and the Beijing and Nanjing Universities of Aeronautics and Astronautics, have active UAV developmental programs, intended to support the PLA's tactical C4I structure. NPU's ASN-206 probably is China's most advanced UAV. NPU claims the drone can be used for day/night aerial reconnaissance, battlefield surveillance, target positioning, artillery spotting, border patrol, nuclear radiation sampling, aerial photography and prospecting. The ASN-206 can be configured with regular or infrared cameras or television seekers which would give the system a near-real-time capability. It has a ceiling of 5,000-6,000 meters, a range of 150 kilometers, and a loiter time of 4-8 hours. Although China's military probably prefers to purchase a proven system, China's leadership may have determined that indigenous production of UAVs is in China's best interest.

While China's military has a great interest in using UAVs in tactical C4I, it has only limited capability and experience with UAVs to date. Consequently, the practical application of UAV sensor information to battlefield operations is only in the developmental stage. The application of UAVs in tactical C4I operations is likely to increase as new UAVs become operational within the Chinese military.

**"(5) Exploitation by the People's Republic of China of the Global Positioning System or other similar systems, including commercial land surveillance satellites, for significant military purposes, including particularly for increasing the accuracy of weapons or the situational awareness of operating forces."**

China is using the Global Positioning System and the Global Navigation Satellite System (GLONASS), both of which are being used increasingly throughout the world for both commercial and military applications, to improve the accuracy of its weapons and the situational awareness of its operational forces. The Chinese aerospace industry is pursuing the integration of GPS into its new fighter aircraft. China's military industrial complex has entered into joint ventures with foreign firms to produce GPS receivers which may find their way to military weapons. China Aerospace Corporation displayed a GPS receiver at an exhibition in Beijing in September 1996, and provided brochures advertising both a 12-channel GPS receiver and a 12-channel GPS/GLONASS receiver. One brochure showed a space launch vehicle, suggesting GPS use in missile applications. There is no question that China intends to produce receivers that can receive GPS and/or GLONASS signals.

Use of GPS updates will enable China to make significant improvements in its missile capabilities. For example, GPS updates will provide the potential to significantly improve missile accuracy through midcourse guidance correction. Moreover, the use of such updates will increase the operational flexibility of China's newer mobile missiles.

**"(6) Development by the People's Republic of China of capabilities for denial of sea control, such as advanced sea mines or improved submarine capabilities."**

*Sea Mines:*

China is well prepared to conduct offensive and defensive mining operations within its coastal seas (Yellow Sea, East China Sea, Taiwan Strait, and South China Sea) and has a large inventory of mines available, including older Soviet-supplied mines and domestically produced versions of these. Most of China's surface ships are equipped with mine rails and are capable of laying mines as a secondary mission. China is working at improving its mine warfare capabilities through the development and acquisition of new technology. China conducts training exercises using surface ships, submarines, and aircraft in coastal areas and is well-prepared to conduct both minelaying and minesweeping operations in these areas. Although China does not train outside coastal areas, it has the ability to conduct minelaying and minesweeping operations further afield. China is working at improving this capability through the development and acquisition of new technology, and has offered mines for sale at arms shows that include rocket propulsion or radio detonation to enhance targeting.

China currently produces numerous types of naval mines that could be used in coastal seas. Major new improvements probably will focus on developing new techniques and equipment to hunt mines and clear coastal areas that have been mined by an enemy.

This will involve training improvements and development of mine hunting techniques such as using remote submersibles. China is developing a mobile mine for a stand-off capability. While submarines can lay mines today, this stand-off capability will improve survivability and could enable China to maintain a minefield against opposing forces seeking to clear channels through the field, depending on the antisubmarine warfare (ASW) capabilities of the opposition.

Future capabilities probably will include the modernization of China's defensive mining capability to protect its coastal ports, and the ability to sink ships in its coastal seas that do not have dedicated minesweepers escorting them. China's expected acquisition of mobile mines will enhance its offensive capabilities and enable it to launch mines into a foreign port that is not protected by countermeasures such as nets or sonar.

#### *Submarines:*

China produces its own nuclear submarines and has built five HAN Class attack submarines and one XIA-class ballistic missile boat. However, their operations have been limited and they have never sailed beyond their regional waters. While they have a potential for operations in the Pacific Ocean, their capabilities would be very limited against modern Western or Russian ASW capabilities. Replacement designs for both are under development.

China is developing new classes of submarines which will include Russian technology and eventually a submerged-launched anti-ship cruise missile. Other improvements in sonar, propulsion, training, and the application of quieting techniques and technologies will contribute to a significant improvement in the capabilities of China's submarine fleet, even though the size of the force will decline as older boats are scrapped and new ones are built at a slower pace.

China also has purchased two KILO Class submarines from Russia, and is expected to acquire two more in 1998. When their crews are fully trained, these new diesel submarines will provide a substantial improvement in China's attack submarine capability. They will enhance China's capability to interdict commercial or naval shipping, and hence to deny sea control to potentially hostile forces operating in China's coastal seas.

#### *New Surface Warfare Capabilities:*

China reportedly is negotiating the purchase from Russia of two SOVREMENNYY-class destroyers. If a contract is concluded, and includes the standard weapons suite for this ship, China will acquire, perhaps within 2-3 years, an enhanced capability for sea denial operations.

"(7) Continued development by the People's Republic of China of follow-on forces, particularly those capable of rapid air or amphibious assault."

#### *Airborne Forces:*

China's airborne forces consist of the 15th Airborne Army and its subordinate 43rd, 44th, and 45th Airborne Divisions. These airborne forces are an integral part of the People's Liberation Army Air Force. Each of the airborne divisions is supported by a dedicated and collocated troop transport regiment from the 13th Transport Division. Both the 15th Airborne Army and the 13th Transport Division are strategic reserve units that straddle Jinan and Guangzhou Military Regions.

China has used its airborne forces in the past primarily for internal security missions. More recently, China has designated the 15th Airborne Army as a strategic rapid reaction unit for deployment during national contingencies. However, lack of sufficient heavy airlift and other limitations keep this Army from having a robust force projection capability, although in a crisis civil airlift could support it as well.

#### *Amphibious Forces:*

China is continuing to improve its capabilities to conduct amphibious and airborne operations within the region. China has a brigade-sized marine force, based with the South Sea Fleet near Zhanjiang, which is equipped with amphibious tanks and armored personnel carriers for an amphibious landing. China's fleet of about sixty amphibious ships conducts modest-size training exercises in coastal regions. Although China has never conducted a division-scale or larger amphibious exercise fully coordinated with air support and airborne operations, its amphibious force is believed capable of landing at least one infantry division on a beach, depending on the mix of equipment and stores for immediate resupply. If China were to use its merchant fleet, its capacity to move forces would increase, although inadequate air defense and lack of ability and training in cross-beach movement of forces would be critical shortcomings.

China has built several air-cushion vehicles and evaluated their designs, to include training by its marine force. It is likely that China will eventually acquire a small number of these craft for providing rapid infantry assault, although the availability of a mother ship for regional transits is uncertain. Most likely, these craft will need to be carried by a suitable cargo ship, amphibious vehicle landing ship, or possibly a float-on/float-off (FLO/FLO) merchant ship in order to transport them to the scene of action.

If China were to build or purchase an aircraft carrier, such an asset would enable it to provide increased air defense and support for amphibious operations. Although China's long-term goal is to acquire one or more aircraft carriers and it has an active program to develop a design, it remains unclear whether Beijing has reached a firm decision on the kind of carrier it will have, given budget constraints and naval funding priorities. Helicopters from a carrier could provide support to potential amphibious operations; fixed-wing aircraft operating from a carrier could provide greater air defense over a potential beachhead.